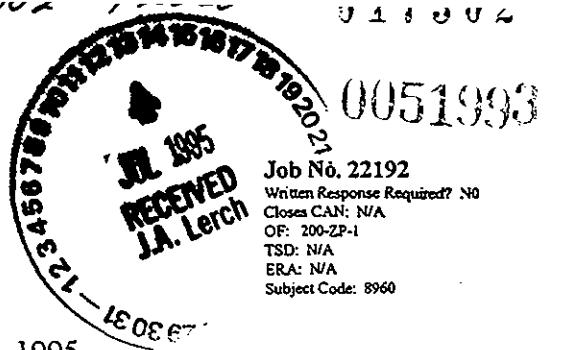


Environmental
Restoration
Contractor

ERC Team

Interoffice Memorandum



Job No. 22192
Written Response Required? NO
Closes CAN: N/A
OF: 200-ZP-1
TSD: N/A
ERA: N/A
Subject Code: 8960

TO: D. L. Parker, H6-02

DATE: July 11, 1995

COPIES: See Below

FROM: Duane Jacques

Analytical Services/Field Screening
H6-04/372-9400

SUBJECT: 200-ZP-1 DNAPL TEST WELL: SOIL AND GROUNDWATER VOC FIELD SCREENING RESULTS

The attached tables provide results for soil and groundwater samples collected from a test well installed near the 216-Z-9 facility which is a part of the 200-ZP-1 Operable Unit. The well was installed to assess the presence of Dense Non-Aqueous Phase Liquid (DNAPL) contaminants in the vadose zone and saturated zone beneath the 216-Z-9 facility.

The soil samples were collected and prepared for analysis following Field Screening Procedure (FSP) 1.2, "Sampling and Analysis of Volatile Organic Compounds in Soil Using the Aqueous Headspace Method" contained in BHI-EE-05, *Field Screening Procedures*, January, 1995. Soil samples were collected from drilled soil borings using a disposable plastic coring device. The soil samples consisted primarily of silt and sand collected from selected regions within each soil boring. Rocks and gravels in the soil boring were not sampled. Soil plugs of about 5 to 7 grams each were quickly transferred from the disposable coring device into 40-mL VOA vials containing 30 mL of deionized water. The vials were capped and the contents were shaken vigorously to distribute the soil in the water matrix. The vials were placed in a heater block set at about 25°C to await analysis. Just prior to analysis, the samples were shaken vigorously for one minute to ensure equilibrium between the liquid and vapor phase. The samples were analyzed for selected volatile organic compounds (VOC) using an aqueous headspace analysis method. The samples were analyzed the same day they were collected, usually within about one hour after collection.

The samples were analyzed following FSP 1.1 "Aqueous Headspace Analysis of Volatile Organic Compounds in Water" contained in BHI-EE-05. Headspace aliquots of 250 µL were obtained from each sample vial using a gas-tight syringe. The headspace samples were then analyzed using a Photovac 10S Plus portable gas chromatograph (Serial Number TB920109). The Photovac 10S Plus (10S Plus) is a self-contained, battery-powered gas chromatograph that is equipped with a 10-meter non-polar, wide-bore, capillary column and a photoionization detector with an 11.7 eV lamp. The 10S Plus was operated isothermally at 40°C using ultra-high purity air carrier gas at a flow rate of 5 mL/min.

The 10S Plus is programmed with a library to detect common chlorinated VOC in a water matrix based on retention time. The library was updated and calibrated using a prepared liquid standard containing chloroform, carbon tetrachloride, and trichloroethylene in the concentration range anticipated for the

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D. L. Parker, H6-02

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samples. Headspace from a sample of deionized water was run after the calibration as a blank to establish a baseline for the analyses. In addition, the calibration standard was reanalyzed at the end of the analytical session to determine any deviation from the original calibration. The deviations were within the acceptable limits for this method ($\pm 20\%$).

Table 1 contains the results for each soil sample analyzed. The HEIS numbers for each soil sample correlate to SAF B95-066 and B95-071. The soil concentrations are expressed in $\mu\text{g}/\text{Kg}$ (parts-per-billion) and represent an estimate of the concentration of contaminants extracted from the soil into the water matrix. These values were determined by calculating the total mass of contaminant in the water matrix and back-calculating the concentration to the soil mass. This calculation is based on the assumption that contaminants detected in the water matrix were desorbed from the soil.

This assumption probably represents a simplistic evaluation of the distribution of contaminants in the soil matrix. It is likely the pore spaces in soil samples collected from the saturated portions of the test-well boring contained groundwater contaminated with the analytes of concern. This method is not able to distinguish between contaminants originating in water in the pore spaces and contaminants adsorbed to the soil matrix. The method also assumes 100% of the contaminants adsorbed to the soil particles are desorbed into the water matrix. Realistically, the percentage of desorption is probably less than 100%. The literature on this analytical method concludes that soils containing large amounts of clay and organic material show relatively lower recovery of VOC than sandy soils. The VOC tend to remain bound to the clay and organic materials, are not readily desorbed into the water matrix, and are therefore not detected by the analytical method. Some of the soil samples collected from the test-well boring contained a relatively large amount of clay and fine silt material.

Table 2 contains results for groundwater samples. The HEIS numbers for each soil sample correlate to SAF B95-060. The groundwater concentrations detected are expressed in $\mu\text{g}/\text{L}$ (parts-per-billion). These groundwater samples were collected on June 28, 1995 as the well was being developed. The samples were collected with zero headspace, preserved with concentrated hydrochloric acid, and stored at 4°C. The samples were analyzed on June 29, 1995 using the aqueous headspace method described earlier in this letter. About 12 mL of liquid was removed from each sample prior to analysis using a disposable syringe to create the desired headspace in each vial. The values reported are the actual measured concentrations for each groundwater sample detected by the gas chromatograph.

D. L. Parker, H6-02
Page 3

Please contact me if you have any questions on this information. I will retain copies of the calibration, quality control, and sample chromatograms in my files. Notes concerning the analyses are contained in the 68N-1985 mobile laboratory logbook. Copies of the laboratory custody/log sheets are included in this package to document sample custody and quality control samples analyzed as part of this project. In addition, the work sheets used to document and calculate the soil concentrations are included in the package.

Duane Jacques

Duane Jacques

IDJ:idj

Attachments: Table 1. 200-ZP-1 DNAPL Test Well Soil Sample Results.
 Table 2. 200-ZP-1 DNAPL Test Well Groundwater Sample Results.

Copies

R. A. Casto, H6-04, w/a
J. R. Freeman-Pollard, H6-04, w/a
D. R. Jordan, X2-10, w/a
J. A. Lerch, H4-14, w/a
K. L. Lookabill-Stump, H6-02, w/a
R. G. McCain, H6-02, w/a
W. H. Price, H6-04, w/a
IDJ - File, w/a
BHI Document Control H4-79, w/a

Table 1. 200-ZP-1 DNAPL Test Well Soil Sample Results

Date	Time	HEIS #	Depth (ft)	Soil Type	TCM (ug/Kg)	CCI4 (ug/Kg)
6/1/95	8:27	BOFN66	92.5 - 93.0	Silty Sand	<15	<15
6/1/95	8:27	BOFN67	92.0 - 92.5	Silty Sand	<15	<15
6/1/95	8:27	BOFN68	91.5 - 92.0	Silty Sand	<15	<15
6/1/95	8:27	BOFN69	91.0 - 91.5	Silty Sand	<15	<15
6/1/95	8:27	BOFN70	91.0 - 91.5	Silty Sand	<15	<15
6/1/95	10:50	BOFN78	Spiked	BOFN66	530	400
6/1/95	14:17	BOFN73	105.5 - 106.0	Silty Sand	<15	<15
6/1/95	14:17	BOFN74	106.0 - 106.5	Silt	<15	7.1J
6/1/95	14:17	BOFN75	106.5 - 107.0	Silt	<15	<15
6/1/95	14:17	BOFN76	107.0 - 107.5	Silty Sand	<15	<15
6/1/95	14:17	BOFN77	107.0 - 107.5	Silty Sand	<15	<15
6/6/95	11:08	BOFN81	140.5 - 141.0	Sand	<15	<15
6/6/95	11:08	BOFN82	141.0 - 141.5	Silt	<15	17.6
6/6/95	11:08	BOFN83	141.5 - 142.0	Sand	<15	<15
6/6/95	11:08	BOFN84	142.0 - 142.5	Sand	<15	<15
6/6/95	11:08	BOFN85	142.0 - 142.5	Sand	<15	<15
6/12/95	9:29	BOFZX0	191.4	Silt	<15	<15
6/12/95	9:25	BOFWZ9	191.9	Silt	<15	<15
6/12/95	9:23	BOFWZ8	192.4	Silt	<15	<15
6/12/95	11:04	BOFZX1	193	Silt	<15	<15
6/13/95	9:17	BOFZX3	193.8	Sandy Gravel	<15	<15
6/13/95	9:15	BOFZX2	194.8	Sandy Gravel	<15	<15
6/13/95	9:26	BOFZX4	196.8	Sandy Gravel	<15	<15
6/13/95	13:15	BOFZX5	slough	Sandy slough	<15	<15
6/13/95	13:18	BOFZX8	197.5	Silty Sand	18	<15
6/13/95	13:16	BOFZX6	199.3	Sandy Silt	29	11J
6/13/95	14:34	BOFZX7	slough	Silty slough	80	<15
6/13/95	15:22	BOFZY0	200.2	Sandy Silt	54	<15
6/13/95	14:36	BOFZX9	201.0	Sandy Silt	<15	<15
6/13/95	15:46	BOFZY1	slough	Sandy slough	24	115
6/13/95	15:48	BOFZY2	201.5	Sandy gravel	48	176
6/13/95	15:49	BOFZY3	202.9	Sandy Silt	58	6.6J
6/14/95	8:39	BOFZY7	204	sand	270	<15
6/14/95	8:41	BOFZY8	206.5	sandy gravel	87	<15
6/14/95	9:40	BOFZY9	207.3	sandy gravel	<15	79
6/14/95	9:42	BOFZZ5	208.4	sandy gravel	<15	12J
6/14/95	9:44	BOFZZ3	209.3	sandy gravel	<15	25
6/14/95	9:46	BOFZZ4	210.4	sandy gravel	<15	11J
6/14/95	11:44	BOFZZ7	212.2	sandy gravel	31	10J
6/14/95	11:43	BOFZZ6	215.3	sandy gravel	20	53
6/14/95	13:34	BOG001	216.0	SS Sandy gravel	<15	38
6/14/95	11:45	BOFZZ8	slough	sandy gravel	<15	<15
6/14/95	13:32	BOG000	218.4	SS Sandy gravel	130	18
6/14/95	13:30	BOFZZ9	220.7	SS Sandy gravel	<15	40
6/14/95	15:39	BOG004	222.0	Silty Sandy Gravel	<15	23
6/14/95	15:36	BOG003	223.5	Silty Sandy Gravel	75	56

Table 1. 200-ZP-1 DNAPL Test Well Soil Sample Results

Date	Time	HEIS #	Depth (ft)	Soil Type	TCM (ug/Kg)	CCI4 (ug/Kg)
6/14/95	15:34	B0G002	225.8	Silty Sandy Gravel	47	120
6/14/95	16:15	B0G006	226.4	Silty Sandy Gravel	85	12
6/14/95	16:18	B0G007	228.5	Silty Sandy Gravel	< 15	63
6/14/95	16:13	B0G005	230.7	Silty Sandy Gravel	< 15	160
6/15/95	8:20	B0G012	231.4	Silty Sandy Gravel	< 15	35
6/15/95	8:18	B0G011	232.2	Silty Sandy Gravel	< 15	150
6/15/95	8:15	B0G010	234.7	Silty Sandy Gravel	< 15	26
6/15/95	9:31	B0G083	236.2	Sandy Gravel	< 15	26
6/15/95	9:33	B0G084	237.6	Sandy Gravel	< 15	60
6/15/95	9:35	B0G085	238.9	Sandy Gravel	< 15	78

DNAPL Test Well Soil Sample Results

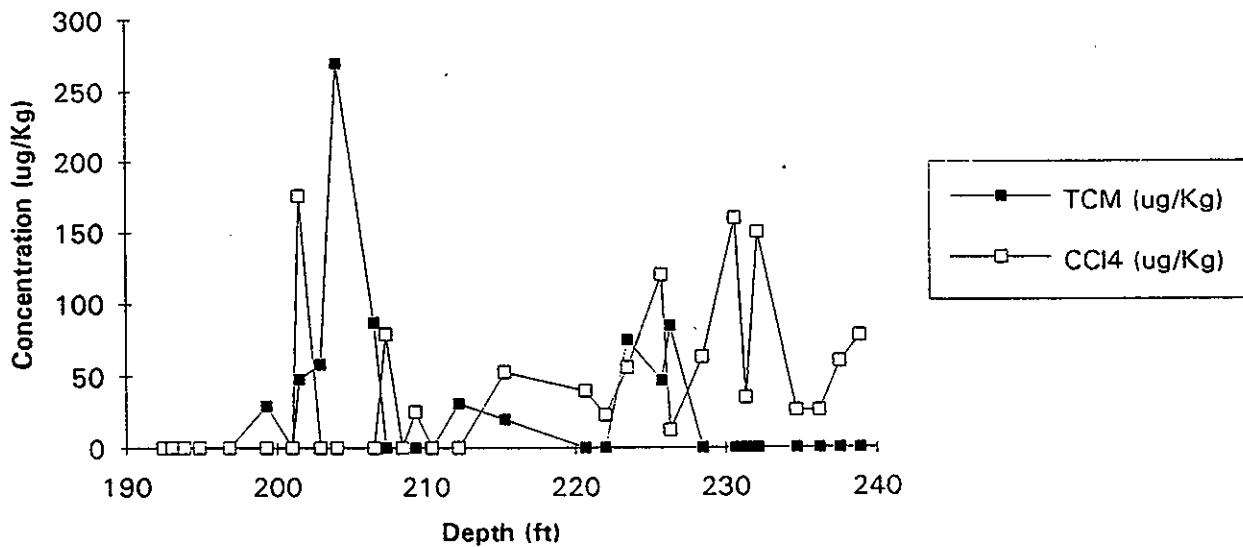
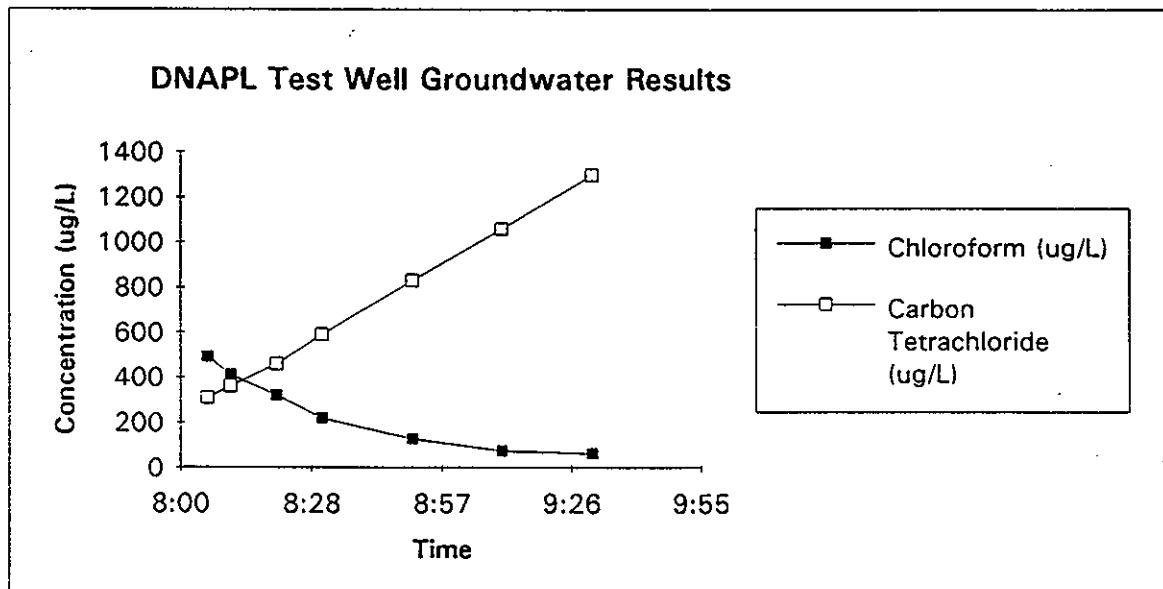


Table 2. 200-ZP-1 DNAPL Test Well Groundwater Sample Results

Date	Time	HEIS #	Chloroform (ug/L)	Carbon Tetrachloride (ug/L)
6/28/95	8:06	B0G3V3	490	310
6/28/95	8:11	B0G3V4	410	360
6/28/95	8:21	B0G3V5	320	460
6/28/95	8:31	B0G3V6	220	590
6/28/95	8:51	B0G3V7	130	830
6/28/95	9:11	B0G3V8	75	1060
6/28/95	9:31	B0G3V9	63	1300



MOBILE LABORATORY DATA/LOG SHEET

Site Name: 200-ZP-1 DNAPL WellDate: 6-1-95

Sample Number	Sample Time	Sample Type	Sampler (Initials)	Analysis Time	Analytical Results	Comments
BOFN66	0827	Soil	JF	0952	No Detects	Sleeve A 92.5-93.0 SS
BOFN67	0827	Soil	JF	1008	No Detects	Sleeve B 92.0-92.5 SS
BOFN68	0827	Soil	JF	1019	No Detects	Sleeve C 91.5-92.0 SS
BOFN69	0827	Soil	JF	1030	No Detects	Sleeve D 91.0-91.5 Siltier SS
BOFN70	0827	Soil	JF	1039		Sleeve D dupe.
BOFN71	0920	Cal Standard	IDJ	0930	TCM = 0.17 CCl4 = 0.055 TCE = 0.048	Good Cal
BOFN72	0830	Blank Sample	IDJ	0942	No Detects	—
AC-1	0940	H ₂ O	IDJ	1307	TCM = 41 CCl4 = 2900, TCE = 1.4	
SC-6	0942	H ₂ O	IDJ	1315	TCM = 41 CCl4 = 3100, TCE = 1.8	
SC-3	0944	H ₂ O	IDJ	1153	CCl4 = 223 ppb	
SC-4	0945	H ₂ O	IDJ	1142	No Detects	
AC-9	0950	H ₂ O	IDJ	1133	No Detects	
BOFN78	1050	Spiked Soil	IDJ	1100	TCM = 80 (-8%) CCl4 = 60 (+15%) TCE = 70 (+15%)	TCM = 87 TCE = 6 CCl4 = 52
ZP-1(Cal 32)	0920	H ₂ O	IDJ	1114	TCM = 170 CCl4 = 55 TCE = 48	Good Cal
ZP-1 Blk 32	0830	H ₂ O	IDJ	1123	No Detects	Blank
ZPLC CH 32	0920	H ₂ O	IDJ	1205		Lo Cal Check
ZP1Cal-32	1040	H ₂ O	RPJ	1244	TCM = 145 CCl4 = 2600, TCE = 56	Good Cal
ZPSCL-32	0942	H ₂ O	RPJ	1257	X	BAD INJECTION
ZPACT-32	0940	H ₂ O	IDJ	1307	TCM = 40.5 CCl4 = 2910, TCE = 1.4	* SEE AC-1 ABOVE
ZPSCL-32	0942	H ₂ O	IDJ	1315	TCM = 41 CCl4 = 3100, TCE = 1.8	* SEE SC-6 ABOVE
ZHblk-32	1040	H ₂ O	IDJ	1346	TCM = 160 CCl4 = 3640, TCE = 55.7	TCM = +10% CCl4 = +2%, TCE = 1%
BOFN71a	0920	H ₂ O	IDJ	1400	TCM = 167 CCl4 = 53.3 TCE = 45.7	TCM = -2% CCl4 = -3%, TCE = -5%
BOFN73	1417d	H ₂ O	JF	1456	No Detects	Sleeve D
BOFN74	1417c	H ₂ O	JF	1510	trace CCl4 < 2.0	Sleeve C
BOFN75	1417b	H ₂ O	JF	1520	No Detects	Sleeve B
BOFN76	1417a	H ₂ O	JF	1530	No Detects	Sleeve A

MOBILE LABORATORY DATA/LOG SHEET

Site Name: 200-ZP-1 DNAPL WellDate: 6-1-95
6-6-95

Sample Number	Sample Time	Sample Type	Sampler (Initials)	Analysis Time	Analytical Results	Comments
BOFN 77	1417 a	H ₂ O	JF	1539	No Detects	Steeve + out
BOFN 79	0920	H ₂ O cal std	IDJ	1549	TCM = 164, CCl ₄ = 46 TCE = 43	Cal check
BOFN 80	1045	H ₂ O cal std	RBK	1207	TCM = 200, CCl ₄ = 52 TCE = 56	Good Cal.
BOFN 81	1108 a	H ₂ O + Soil	JF	1232	No Detects	
BOFN 82	1108 c	H ₂ O + Soil	JF	1243	TCM = ND, CCl ₄ = 3.0	
BOFN 83	1108 b	H ₂ O + Soil	JF	1253	No Detects	
BOFN 84	1108 a	H ₂ O + Soil	JF	1307	No Detects	
BOFN 85	1108 a	H ₂ O + Soil	JF	1320	No Detects	
BOFN 86	1045	H ₂ O BLANK	RBK	1221	No Detects	BLANK
BOFN 87	1045	H ₂ O cal std	RBK	1333	TCM = 175, CCl ₄ = 50 TCE = 57	TCM = -37%, CCl ₄ = -4% TCE = +20%
BOFZWB	0950	H ₂ O cal std	IDJ	1014	TCM = 110 CCl ₄ = 52 TCE = 47	Good cal.
BOFZW7	0915	H ₂ O Blank	IDJ	1101	No detect	BLANK
BOFZW8	0923	H ₂ O + Soil	IDJ	1119	No detect	—
BOFZW9	0925	H ₂ O/Soil	IDJ	1128	No detect	—
BOFZX0	0929	H ₂ O/Soil	IDJ	1139	No detect	—
BOFZX1	1104	H ₂ O/Soil	IDJ	1154	No detect	—
BOFZY4	0950	Oil Check	IDJ	1531	Could not detect peaks oven failure.	
BOFZY5	0940	Oil Standard	RBK	1055 1025	TCM = 150, CCl ₄ = 99, TCE = 93	Good Cal!
BOFZY6	0930	H ₂ O Blank	IDJ	1104	No detect	Good run
BOFZX2	0915	Soil in H ₂ O	IDJ	1113	No detect	—
BOFZX3	0917	Soil in H ₂ O	IDJ	1121	No detect	—
BOFZX4	0926	Soil/H ₂ O	IDJ	1130	No detect	—
BOFZX5	1315	Soil/ H ₂ O	IDJ	1335	No detect	100 ml inj - No detect 1340-250 ml inj
BOFZX6	1316	Soil/ H ₂ O	IDJ	1355	ccf = 2.7 ppb	250 ml inj
BOFZX8	1318	Soil/ H ₂ O	IDJ	1405	No detect	250 ml inj
BOFZX7	1434	Soil/ H ₂ O	KLS			

MOBILE LABORATORY DATA/LOG SHEET

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Site Name: 200-3P-1 DIVAPL

Date: 6-13-85

017302

68N-1985 Mobile Laboratory Custody/Log Sheet

Site Name: 200-2P-1 DNAPL well

Site/Sample Number	Sample Type	Sample Depth	Sample Date/Time	Sampler (Initials)	HEIS Number	Analysis Date/Time	Analyst (Initials)	Comments
CAC	H ₂ O	MIO CAC	6/29/95 1140	RBK	BOG 089 BOG 3V4	6/29/95 1240	RBK	TCM = 145, CC/LY = 412 TCE = 98
—	H ₂ O	BLANK	6/29/95 1000	RBK	BOG 098 BOG 3V2	6/29/95 1249	RBK	—
2P-1 DNAPL	H ₂ O		6/28/95 0805	DB	BOG 3V3	6/29/95 1305	RBK	110CE ? TCM = 485 CC/LY = 309 ppb
u	H ₂ O		6/28/95 0811	DB	BOG 3V4	6/29/95 1323	RBK	TCM = 412 CC/LY = 357
u	H ₂ O		6/28/95 0821	DB	BOG 3V5	6/29/95 1331	RBK	TCM = 316 CC/LY = 464
u	H ₂ O		6/28/95 0831	DB	BOG 3V6	6/29/95 1340	RBK	TCM = 217 CC/LY = 591
u	H ₂ O		6/28/95 0851	DB	BOG 3V7	6/29/95 1349	RBK	TCM = 130 CC/LY = 825
u	H ₂ O		6/28/95 0911	DB	BOG 3V8	6/29/95 1358	RBK	TCM = 97 ppb CC/LY = 921 ppb
u	H ₂ O		6/28/95 0931	DB	BOG 3V9	6/29/95 1411	RBK	TCM = 85 CC/LY = 1130
—	H ₂ O	BLANK	6/29/95 1000	RBK	BOG 091 BOG 3V2	6/29/95 1419	RBK	—
—	H ₂ O	MIO CAC	6/29/95 1140	RBK	BOG 092 BOG 3V8	6/29/95 1428	RBK	TCM = 157 (+8%), CC/LY = 428 (+39%) TCE = 111 (+139%)
—	H ₂ O	BLANK	6/29/95 1000	RBK	BOG 3V2	6/29/95 1437	RBK	— SNG
H ₂ CAC	H ₂ O	H ₂ CAC STD	6/29/95 1420	RBK	BOG 093 BOG 3V1	6/29/95 1531	RBK	TCM = 319 CC/LY = 1053 ppb. GOOD CAL.
—	H ₂ O	Blank	6/29/95 1000	RBK	BOG 094 BOG 3V2	6/29/95 1541	RBK	—
2P-1 DNAPL	H ₂ O		6/28/95 0911	DB	BOG 3V8	6/29/95 1551	RBK	TCM = 75 CC/LY = 1062 ppb.
u	H ₂ O		6/28/95 0931	DB	BOG 3V9	6/29/95 1605	RBK	TCM = 63 CC/LY = 1313 ppb
CAC check	H ₂ O	H ₂ CAC STD	6/29/95 1420	RBK	BOG 095 BOG 3V1	6/29/95 1620	RBK	TCM = 313 (-2%) CC/LY = 1041 (-1%)

VOC IN SOIL FIELD ANALYSIS DATA/LOG SHEET

Site Name: 200-ZP-1 DNAPL Well

Date: 6-1-95

Sample Number	Sample Time	¹ H ₂ O (g)	² Vial Tare (g)	³ Total Sample (g)	⁴ Net Soil (g) (3-2)	⁵ Analytical Results (µg/g)	Soil Concentration (µg/g) (5*1/4)	Comments
BOFN66	0827	30	58.0	62.5	4.5	No detects, <2.0	No detects <15	Silty Sand
BOFN67	0827	30	57.7	62.6	4.9	No detects <2.0	TCM/ccl4/TCE = <15	Silky Sand
BOFN68	0827	30	58.8	63.3	4.5	No detects TCM/ccl4/TCE = <2.0	TCM/ccl4/TCE = <15	Silty Sand
BOFN69	0827	30	58.2	62.9	4.7	No detects <2.0	TCM/ccl4/TCE = <15	Siltier Silty Sand
BOFN70	0827	30	58.4	63.2	4.8	No detects <2.0	TCM/ccl4/TCE = <15	Siltier Silty Sand
BOFN78	1050	30	58.0	62.5	4.5	TCM = 80, CCl4 = 60 TCE = 70	TCM = 530 CCl4 = 400 TCE = 470	Spiked BOFN66 TCM = 87, CCl4 = 52, TCE = 61 105.5 - 107.5
BOFN73	1417	30	57.9	62.4	4.5	No Detects, <2.0	No detects (<15)	Silky Sand
BOFN74	1417	30	58.2	62.0	3.8	TRACE CCl4 (1.9 ppb), <2.0	No detects, <15	Silky Sand
BOFN75	1417	30	57.7	62.1	4.4	No DETECTS, <2.0	No DETECTS, <15	Silky Sand
BOFN76	1417	30	58.6	62.9	4.3	No DETECTS, <2.0	No DETECTS, <15	Silky Sand
BOFN77	1417	30	58.4	63.0	4.6	No Detects, <2.0	TCM/ccl4/TCE = <15	Silky Sand
BOFN81	1108	30	58.4	62.5	4.1	No DETECTS, <2.0	TCM/ccl4/TCE = <15	
BOFN82	1108	30	57.7	62.8	5.1	TCM = ND, CCl4 = 3.0 TCE = ND	TCM = <15, CCl4 = 17.6 TCE = <15	*
BOFN83	1106	30	58.2	62.6	4.6	No DETECTS, <2.0	TCM/ccl4/TCE = <15	
BOFN84	1108	30	58.4	62.8	4.4	No DETECTS, <2.0	TCM/ccl4/TCE = <15	
BOFN85	1108	30	58.2	62.7	4.5	No DETECTS, <2.0	TCM/ccl4/TCE = <15	

Sampler: JF
BHI-EE-135, 5/95

Analyst: IAD/RPK

017302

VOC IN SOIL FIELD ANALYSIS DATA/LOG SHEET

6-9-95 DOY
Date: 6-6-95

Site Name: 200-ZP-1 DNAPL Well

Sample Number	Sample Time	¹ H ₂ O (g)	² Vial Tare (g)	³ Total Sample (g)	⁴ Net Soil (g) (3-2)	⁵ Analytical Results (µg/g)	Soil Concentration (µg/g) (5 * 1/4)	Comments
BOFZW8	0923	30	57.4	61.2	3.8	ND	<15 ppb	top of lower sleeve (0, fine silt 19.4 19.7 19.7 19.8
BOFZW9	0925	30	58.2	63.0	4.8	ND	<15	top of sleeve C 19.8
BOFZX0	0929	30	58.7	60.8	2.1	ND	<15	top of sleeve B 19.4
BOFZX1	1004	30	57.8	61.0	3.2	ND	<15	top of D 193.0 192.9 193.5
BOFZX2	0915	30	58.1	64.0	5.9	ND	<15	top of E silty sandy gravel depth = 195.9 196.8
BOFZX3	0917	30	58.1	62.4	4.3	ND	<15	top of F 33 sand gravel 193.8
BOFZX4	0926	30	58.1	63.7	5.6	ND	<15	top of G 55 sandy gravel depth = 197.0
BOFZX5	1315	30	57.4	63.6	6.2	ND	<15	dark silt layer middle bottom of slough
BOFZX6	1316	30	56.8	64.0	7.2	TCM = 7.0 CCl ₄ = 2.75 ppb	TCM = 27 CCl ₄ = 11 ppb	silt at bottom 199.3 sandy gravel
BOFZX7	1318	30	57.2	63.2	6.0	TCM = 16	TCM = 80 CCl ₄ <15	2 ft from bottom 197.5 silt layer
BOFZX8	1318	30	56.9	62.3	5.4	TCM = 3.3 Non detect	TCM = 18 CCl ₄ <15	silty sandy gravel 197.5
BOFZX9	1436	30	56.9	63.3	6.4	No detect	<15	2 ft 201 ft sandy silt
BOFZY0	1522	30	57.1	64.3	7.2	TCM = 13	CCl ₄ <15; TCM = 54	200.1 ft sandy silt
BOFZY1	1546	30	57.4	65.5	8.1	TCM = 31 CCl ₄ = 6.6	CCl ₄ = 24 TCM = 115	top = slough sandy gravel
BOFZY2	1548	30	56.8	62.6	5.8	TCM = 9.2 CCl ₄ = 34	TCM = 48 CCl ₄ = 176	middle = 201.5 sandy gravel
BOFZY3	1549	30	57.3	64.6	7.3	TCM = 14 CCl ₄ = 1.6	TCM = 58 CCl ₄ = 45-6.6	bottom = 202.9 sandy silt

Sampler: (D) Jacques
BHI-EE-135, 5/95

Analyst: (D) Jacques

VOC IN SOIL FIELD ANALYSIS DATA/LOG SHEET

Site Name: 200-ZP-1 DNAPL Well

Date: 6-13-95

Sample Number	Sample Time	¹ H ₂ O (g)	² Vial Tare (g)	³ Total Sample (g)	⁴ Net Soil (g) (3-2)	⁵ Analytical Results (ug/g)	Soil Concentration (ug/g) (5 * 1/4)	Comments
BOF2Y7	0839	30	56.8	64.2	7.4	TCM = 66 ppb TCE = 0.54	TCM = 330 ppb TCE = 2.3 ppb	A - 206.5 top 204 Sandy
BOF2Y8	0841	30	57.1	64.0	6.9	TCM = 20 ppb	TCM = 97	B 206.5 bottom 206.5 Sandy Gravel
BOF2Y9	0940	30	56.8	64.8	8.0	CCl ₄ = 21 ppb	CCl ₄ = 79	Sandy Gravel 207.3
BOF2Z3	0944	30	57.4	64.3	6.9	CCl ₄ = 5.8 ppb	CCl ₄ = 25	sandy gravel w/ 209.3 silty lenses
BOF2Z4	0946	30	57.1	64.3	7.2	CCl ₄ = 2.7	CCl ₄ = 11.25 → 11	sandy gravel w/ 210.4 silty lenses
BOF2Z5	0942	30	57.0	65.3	8.3	CCl ₄ = 3.2	CCl ₄ = 12	sandy gravel w/ 208.4 silty lenses
BOF2Z6	1143	30	57.1	62.7	5.6	CCl ₄ = 9.9 ppb	CCl ₄ = 53 ppb	bottom 215.3 Sandy gravel
BOF2Z7	1144	30	57.0	63.6	6.6	TCM = 4.4 CCl ₄ = 2.2	TCM = 20 ppb CCl ₄ = 10 ppb	middle 212.2 Sandy gravel
BOF2Z8	1145	30	57.0	62.3	5.3	TCM = 5.5	TCM = 31 ppb	top slough Sandy gravel
BOF2Z9	1330	30	56.9	64.4	7.5	CCl ₄ = 10 ppb	CCl ₄ = 40 ppb	220.7 SS Sandy Gravel
BOG000	1332	30	57.0	62.9	5.9	TCM = 26 ppb CCl ₄ = 4 ppb	TCM = 130 ppb CCl ₄ = 20 ppb → 19 ppb	218.4 Silty Sandy Gravel
BOG001	1334	30	56.8	63.0	6.2	CCl ₄ = 7.9	CCl ₄ = 38 ppb	216.0 Silty Sandy Gravel
BOF2Z1	0750	30	—	—	—	TCM = 150 CCl ₄ = 109, TCE = 107	Cel Standard	
BOF2Z2	0780	30	—	—	—	Clean H ₂ O	Blank	
BOG002	1534	30	57.1	64.8	7.7	TCM = 12 ppb CCl ₄ = 31 ppb	TCM = 47 ppb CCl ₄ = 120 ppb	225.8 Silty/S 6
BOG003	1536	30	56.9	62.5	5.6	TCM = 14 ppb CCl ₄ = 10 ppb	TCM = 55 ppb CCl ₄ = 56 ppb	223.3 SSG

Sampler: L.D. Jacques
BHI-EE-135, 5/95

Analyst: L.D. Jacques

0
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VOC IN SOIL FIELD ANALYSIS DATA/LOG SHEET

Site Name: 200-ZP-1 DNAPL

Date: 6-15-95

Sample Number	Sample Time	¹ H ₂ O (g)	² Vial Tare (g)	³ Total Sample (g)	⁴ Net Soil (g) (3-2)	⁵ Analytical Results (µg/g)	Soil Concentration (µg/g) (5 * 1/4)	Comments
B06004	1539	30	57.4	65.9	8.5	CCl ₄ = 6.5 ppb	CCl ₄ = 22.9 ppb	228.8 MSG
B06005	1813	30	56.5	61.8	5.3	CCl ₄ = 28 ppb	CCl ₄ = 160 ppb	rockaceous 238.7
B06006	1615	30	57.1	64.5	7.4	TCM = 21 ppb CCl ₄ = 3.0 ppb	TCM = 85 ppb CCl ₄ = 12 ppb	+ 226.4 MSG
B06007	1618	30	57.1	62.3	5.2	CCl ₄ = 11 ppb	CCl ₄ = 63 ppb	228.5 MSG
B06008	0811	30	57.2	—	—	TCE = 121 ppb CCl ₄ = 112 ppb TCM = 174 ppb	—	Cali std ✓
B06009	0811	30	57.0	—	—	—	—	blank
B06010	0815	30	57.2	62.6	5.4	CCl ₄ = 4.7 ppb	CCl ₄ = 26 ppb	Silty sand & gravel depth = 234.7 - 0.51
B06011	0818	30	56.7	58.2	1.5	CCl ₄ = 7.7	CCl ₄ = 154 ppb	Silty sand & gravel depth = 232.2
B06012	0820	30	57.4	62.4	5.0	CCl ₄ = 5.8	CCl ₄ = 35 ppb	Silty sand & gravel depth = 231.4
B06013	—	30	57.2	—	—	—	—	—
B06014	10115	30	56.8	—	—	—	—	cat std
B06083	0931	30	56.3	63.9	7.6	CCl ₄ = 6.7	CCl ₄ = 26 ppb	— Silty gravel depth = 236.2 top
B06084	0933	30	57.8	62.7	5.1	CCl ₄ = 10 ppb	CCl ₄ = 76 ppb	Sandy gravel depth = 237.6
B06085	0935	30	58.0	63.4	5.4	CCl ₄ = 14 ppb	CCl ₄ = 78 ppb	Sandy gravel depth = 238.9 bottom
B06086	0943	30	57.9	63.6	5.7	—	—	Sandy gravel w/ silt depth = 233.1
B06087	0945	30	59.0	62.4	4.4	Q	—	Sandy gravel w/ silt depth = 213.0
B06088	0947	—	—	—	—	—	—	depth = 219.7

Sampler: J.-D. Jaegnes
BHI-EE-135, 5/95

Analyst: J.-D. Jaegnes

VOC IN SOIL FIELD ANALYSIS DATA/LOG SHEET

Site Name: 200-2P-1 DNAPL

Date: 6-15-95

Sampler: _____
BHI-EE-135, 5/95